



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,679	08/09/2001	Nagayuki Takao	0152-0574P-SP	2364
2292	7590	04/25/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			SHOSHO, CALLIE E	
			ART UNIT	PAPER NUMBER
			1714	
DATE MAILED: 04/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

17

Office Action Summary	Application No.	Applicant(s)	
	09/924,679	TAKAO ET AL.	
	Examiner	Art Unit	
	Callie E. Shosho	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/17/04, 7/23/04, 8/4/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/4/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/17/04 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5-12, 16, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kitamura et al. (U.S. 6,498,222).

Kitamura et al. disclose water-based ink comprising water, 0.1-20% water-soluble polymer such as polyvinyl alcohol or polyvinyl pyrrolidone, water-soluble solvent including lower alcohol, dye including oil-soluble dye which would inherently possess solubility in water less than solubility in solvent as presently claimed, additives including pH adjustor and 1-40%

Art Unit: 1714

azole compound such as 1H-benzotriazole-1-methanol (col.7, lines 12-16 and 58-59, col.8, lines 54-55, col.9, line 52, col.10, lines 1-2 and 22-25, col.11, line 36, col.12, lines 24-25, and col.12, lines 41-43 and 47-52). Although there is no disclosure of the viscosity or flash point of the ink, given that Kitamura disclose ink identical to that presently claimed, it is clear that the ink would inherently possess viscosity and flash point as presently claimed.

Although there is no disclosure that the azole compound functions as a quick-drying property imparting agent or any disclosure regarding the solubility of the compound in water/solvent or its melting temperature, given that Kitamura et al. disclose azole identical to that presently claimed, it is clear that the azole compound will inherently function as quick-drying property imparting agent as well as inherently possess solubility and melting temperature as presently claimed. As evidence to support his position it is noted that the courts have held that “a compound and all its properties are mutually inseparable”, *In re Papesch*, 315F.2d 381, 137 USPQ 42, 51 (CCPA 1963). Further, attention is drawn to MPEP 2112.01, which states that “products of identical chemical composition can not have mutually exclusive properties. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present.”, *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In light of the above, it is clear that Kitamura et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1714

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. (U.S. 6,498,222) in view of Doi et al. (U.S. 6,378,999).

The disclosure with respect to Kitamura et al. in paragraph 3 above is incorporated here by reference.

The difference between Kitamura et al. and the presently claimed invention is the requirement in the claims of silicone or fluorine containing surfactant.

Doi et al., which is drawn to ink jet ink, disclose the use of 0.01-3% silicone or fluorine-based surfactant in order to control the surface tension of the ink and to improve the reliability of jetting the ink (col.9, lines 40-43).

In light of the motivation for using silicone and/or fluorine based surfactant disclosed by Doi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such surfactant in the ink jet ink of Kitamura et al. in order to produce an ink with suitable surface tension and improved reliability or alternatively, good penetrability, and thereby arrive at the claimed invention.

7. Claims 1-3, 5-16, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 53140105 in view of Kitamura et al. (U.S. 6,498,222).

JP 53140105 discloses ink comprising water, solvent including monovalent alcohol, 0.002-10% water-soluble polymer including acrylic resin, and 0.01-2% fluorescent dye that is europium thenoyltrifluoroacetate. The ink has viscosity of 1-10 cps. The ratio of water to solvent is 30-90:70-10 (page 4, paragraphs 1 and 2, page 5, second full paragraph (lines 5-6) to page 6, second full paragraph, paragraph bridging pages 6-7).

Although there is no disclosure regarding the solubility of the dye in water and solvent as presently claimed, given that JP 53140105 disclose dye and solvent identical to those presently claimed, it is clear that the dye would intrinsically possess such solubility.

The difference between JP 53140105 and the present claimed invention is the requirement in the claims of quick-drying property imparting agent.

Kitamura et al., which is drawn to ink jet ink, disclose the use of 1-40% azole compound such as 1H-benzotriazole-1-methanol in order to prevent clogging of printer nozzle (col.11, lines 11-15 and 22-25 and col.11, lines 33-36). Although there is no disclosure that the azole compound functions as a quick-drying property imparting agent or any disclosure regarding the solubility of the compound in water/solvent or its melting temperature, given that Kitamura et al. disclose triazole identical to that presently claimed, it is clear that the triazole compound will intrinsically function as quick-drying property imparting agent as well as intrinsically possess solubility and melting temperature as presently claimed.

In light of the motivation for using triazole compound disclosed by Kitamura et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such triazole in the ink of JP 53140105 in order to produce ink which will not clog printer nozzles, and thereby arrive at the claimed invention.

8. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 53140105 in view of Kitamura et al. as applied to claims 1-3, 5-16, and 19-20 above, and further in view of Doi et al. (U.S. 6,378,999).

The difference between JP 53140105 in view of Kitamura et al. and the presently claimed invention is the requirement in the claims of silicone or fluorine containing surfactant.

Doi et al., which is drawn to ink jet ink, disclose the use of 0.01-3% silicone or fluorine-based surfactant in order to control the surface tension of the ink and to improve the reliability of jetting the ink (col.9, lines 40-43).

In light of the motivation for using silicone and/or fluorine based surfactant disclosed by Doi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such surfactant in the ink jet ink of JP 53140105 in order to produce an ink with suitable surface tension and improved reliability or alternatively, good penetrability, and thereby arrive at the claimed invention.

9. Claims 1-3, 5-16, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 53140105 in view of Ohta et al. (U.S. 6,211,265).

JP 53140105 discloses ink comprising water, solvent including monovalent alcohol, 0.002-10% water-soluble polymer including acrylic resin, and 0.01-2% fluorescent dye that is europium thenoyltrifluoroacetate. The ink has viscosity of 1-10 cps. The ratio of water to solvent is 30-90:70-10 (page 4, paragraphs 1 and 2, page 5, second full paragraph (lines 5-6) to page 6, second full paragraph, paragraph bridging pages 6-7).

Although there is no disclosure regarding the solubility of the dye in water and solvent as presently claimed, given that JP 53140105 disclose dye and solvent identical to those presently claimed, it is clear that the dye would intrinsically possess such solubility.

The difference between JP 53140105 and the present claimed invention is the requirement in the claims of quick-drying property imparting agent.

Ohta et al., which is drawn to ink jet ink, disclose the use of azole compound such as 1H-benzotriazole-1-methanol in order to prevent ink from drying at the tip of printer nozzles (col.6, lines 10 and 12-20 and col.7, lines 38-53). Although there is no disclosure that the azole compound functions as a quick-drying property imparting agent or any disclosure regarding the solubility of the compound in water/solvent or its melting temperature, given that Ohta et al. disclose triazole identical to that presently claimed, it is clear that the triazole compound will intrinsically function as quick-drying property imparting agent as well as inherently possess solubility and melting temperature as presently claimed.

Additionally, although there is no explicit disclosure of the amount of the triazole compound used, given that the compound is used to prevent drying of the ink at the nozzle tip, absent evidence to the contrary, it would have been within the skill level of , as well as obvious to, one of ordinary skill in the art to choose any amount of triazole, including that presently claimed, in order to produce an ink which would not clog printer nozzles.

In light of the motivation for using triazole compound disclosed by Ohta et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such triazole in the ink of JP 53140105 in order to produce ink which will not dry at tip of printer nozzles, and thereby arrive at the claimed invention.

10. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 53140105 in view of Ohta et al. as applied to claims 1-3, 5-16, and 19-20 above, and further in view of Doi et al. (U.S. 6,378,999).

The difference between JP 53140105 in view of Ohta et al. and the presently claimed invention is the requirement in the claims of silicone or fluorine containing surfactant.

Doi et al., which is drawn to ink jet ink, disclose the use of 0.01-3% silicone or fluorine-based surfactant in order to control the surface tension of the ink and to improve the reliability of jetting the ink (col.9, lines 40-43).

In light of the motivation for using silicone and/or fluorine based surfactant disclosed by Doi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such surfactant in the ink jet ink of JP 53140105 in order to produce an ink with suitable surface tension and improved reliability or alternatively, good penetrability, and thereby arrive at the claimed invention.

Response to Arguments

11. Applicants' arguments filed 5/17/04, 7/23/04, and 8/4/04 have been fully considered but they are not persuasive.

Specifically, applicants argue that JP 53140105 is not a relevant reference against the present claims given that the reference is silent with respect to quick dry properties and does not disclose or suggest that a quick drying property agent could or should be added to shorten fixing time.

It is agreed that there is no disclosure in JP 53140105 of quick-drying properties and thus, no disclosure of quick-drying imparting agent as required in the present claims. However, this is why JP 53140105 is used in combination with either Kitamura et al. or Ohta et al. which each disclose the use of 1H-benzotriazole-1-methanol that is identical to quick-drying imparting agent

utilized in the present invention. Although there is no disclosure in either Kitamura et al. or Ohta et al that 1H-benzotriazole-1-methanol functions as a quick-drying imparting agent, given that Kitamura et al. and Ohta et al. each disclose benzotriazole compound identical to that presently claimed, it is clear that the benzotriazole would intrinsically possess quick-drying imparting properties.

Applicants also argue that JP 53140105 is not a relevant reference against the present claims given that JP 53140105 uses a high boiling point hydrophilic organic solvent in contrast to the present claims which require the use of water-soluble solvent having either a boiling point lower than that of water or vapor pressure higher than that of water in order to enhance drying properties of the ink.

However, it is noted that while JP 53140105 disclose the use of high boiling point solvent such as ethylene glycol monoethyl ether, this is but one of the solvents disclosed by JP 53140105. It is significant to note that JP 53140105 also discloses the use of solvent with boiling point less than water such as methyl ethyl ketone, acetone, ethanol, and propanol. Thus, absent evidence to the contrary, it would have been obvious to one of ordinary skill in the art to choose solvent, including that presently claimed with boiling point less than water, in the ink of JP 53140105, and thereby arrive at the claimed invention.

Applicants also argue that while either Kitamura et al. or Ohta et al disclose 1H-benzotriazole-1-methanol in ink, there is no disclosure that this compound is a quick-drying

property imparting agent wherein the ink utilizes differences in solubility between the quick-drying property imparting agent in water and solvent to attain quick drying properties.

However, while Kitamura et al. disclose the use of 1H-benzotriazole-1-methanol to prevent nozzle clogging and Ohta et al. disclose the use of 1H-benzotriazole-1-methanol to prevent ink from drying at the tip of printer nozzle, it is noted that while these motivations may not be the same motivation for using 1H-benzotriazole-1-methanol as in the present invention, it is noted that obviousness under 103 is not negated because the motivation to arrive at the claimed invention as disclosed by the prior art does not agree with appellant's motivation. *In re Dillon*, 16 USPQ2d 1897 (Fed. Cir. 1990), *In re Tomlinson*, 150 USPQ 623 (CCPA 1996).

Applicants also argue that claim 22 of Kitamura et al. teach the use of solvent having lower vapor pressure than water which is in direct contrast to the present claims which require solvent with vapor pressure higher than that of water.

However, it is noted that claim 22 of Kitamura et al. also discloses the use of lower alcohols which have boiling point lower than water and thus meet the requirements of the present claims regarding the solvent.

Applicants also argue that Ohta et al. disclose the use of water-soluble solvent that has vapor pressure lower than that of water, which is in direct contrast to the present claims that require solvent with vapor pressure greater than water.

It is agreed that Ohta et al. disclose the use of water-soluble solvent that has vapor pressure lower than that of water, which is why Ohta et al. is no longer applicable against the

present claims as a primary reference. Ohta et al. is now only used in combination with JP 53140105 to teach the use of 1H-benzotriazole-1-methanol. It is the examiner's position that Ohta et al. is still a relevant reference against the present claims given that Ohta et al. is not used for its teaching of the presently claimed water-soluble solvent given that JP 53140105 already teaches the use of such solvent. Rather, Ohta et al. is only used for its teaching of 1H-benzotriazole-1-methanol.

Applicants also argue that Ohta et al. do not disclose the use of fluorescent dye.

However, it is noted that only claims 13-15 require the use of fluorescent dye. Further, note that Ohta et al. is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely the use of 1H-benzotriazole-1-methanol in ink jet inks, and in combination with the primary reference, discloses the presently claimed invention.

Applicants also argue that Doi et al. is primarily drawn to pigment ink and do not disclose the use of dye that has solubility in water lower than solubility in water-soluble solvent to attain good drying properties as presently claimed.

However, while Doi et al. may prefer pigments, it is significant to note that Doi et al. also disclose the use of water-insoluble dyes that would clearly intrinsically possess solubility in water lower than solubility in water-soluble solvent. Further, even if Doi et al. did not possess dye identical to that presently claimed, note that Doi et al. is used as teaching reference, and

therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely surfactants utilized in ink jet inks, and in combination with the primary reference, discloses the presently claimed invention.

Applicants filed 1.132 declaration on 7/23/04. The declaration compares ink within the scope of the present claims, i.e. comprising quick-drying property imparting agent, with ink of JP 53140105 and ink of Kitamura et al. It is shown that ink of present invention is superior in terms of drying time.

However, firstly, it is noted that the pages 2-3 of the declaration state that the inventive ink corresponds to example 1 found in the present specification. However, example 1 of the present specification has dry time of 2 seconds while inventive ink of the declaration has dry time of 13 seconds. Thus, it is not clear why the inks, which appear to be identical, have different dry times.

Further, the declaration is not persuasive for the following reasons. The declaration shows that ink of JP 53140105 and Kitamura et al. have longer dry times than ink of present invention. However, given that neither ink comprises quick-drying property imparting agent as presently claimed, this result is not unexpected or surprising. Further, given that inks of JP 53140105 and Kitamura et al. contain different amounts and/or types of dye, solvent, and resin, there is not proper side-by-side comparison between these inks and the ink within the scope of the present claims.

The declaration further prepares ink (ink C-2) wherein quick-drying imparting agent, i.e. 1,2,3-benzotriazole, is added to ink of Kitamura et al. It is shown that such ink has dry time of at least 30 seconds, which is the same dry time as ink of Kitamura et al. that does not comprise 1,2,3-benzotriazole (ink C-1). However, given that each ink is reported to have dry time of at least 30 seconds, it is not clear what the difference is between the two inks. That is, is not clear what times are encompassed by the phrase "at least 30 seconds" given that this phrase can read on drying time of 30, 31, 40, 100, 500, etc. seconds. In light of this, it is not clear if dry time of ink C-1 is 30 sec and drying time of ink C-2 is 31 sec or if drying time of ink C-1 is 40 sec and drying time of ink C-2 is 30 sec. Thus, it is not clear what, if any, difference there is between inks C-1 and C-2 and it is also not clear what, if any, effect the 1,2,3-benzotriazole has on the ink. Clarification is requested.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
4/15/05